The Impact of Information Sharing on Supply Chain Performance: A Beer Game Simulation Approach to Problem-Based Learning

Krisanarach Nitisiri [a], Thawee Nakrachata-Amona [a,1], Thitipong Jamrus [a], Kanchana Sethanan [a], and Cathal de Paor [b]

[a] *Faculty of Engineering, Khon Kaen University, 123 Moo.16 Mittraphap Road, NaiMuang, Muang Khon Kaen, Khon Kaen, 40002, Thailand*

[b] *Department of Reflective Pedagogy and Early Childhood Studies, Immaculate College, South Circular Road, Limerick, Ireland, V94 VN26*

Abstract. The Beer Distribution Game is a frequently used business simulation that aims to instruct individuals on supply chain management, with a focus on the bullwhip effect. In this study, the Beer Game simulation approach is employed to examine how information sharing affects the effectiveness of supply chains. The findings reveal that information sharing leads to a substantial enhancement in the performance of the supply chain by diminishing the bullwhip effect. Moreover, collaborative gameplay produces better outcomes than non-collaborative gameplay. The study evaluates the impact of shared ordering decisions, specifically examining the order-up-to replenishment policy. The findings highlight the importance of information sharing and collaboration in mitigating the bullwhip effect and improving supply chain performance. Additionally, the Beer Game simulation approach proves to be an effective tool for teaching supply chain management concepts and promoting collaborative supply chain management. However, the study has limitations, such as a small sample size of players and only considering the impact of one inventory control strategy. Future studies should address these limitations and compare the performance of different inventory control strategies. Overall, this study has significant implications for supply chain education and practice.

Keywords. Supply chain, Bullwhip effect, Game-based learning, Beer game, Inventory planning

[1] Corresponding Author, Mail: thawna@kku.ac.th